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ABSTRACT

The purpose of this paper is to analyze the impact that computer based information systems (CBIS) could have on U.S. multinational corporations operating in Canada, particularly in the province of Quebec, and the implications for the North American Free Trade Agreement (NAFTA) that went into effect on January 1, 1994. The study focused on how the data processing, internal audit, and financial intelligence subsystems of a financial information system can affect the success and viability of foreign investments. The study showed that when the management information systems (MIS) are viewed as an organizational resource, the financial information systems (FIS) must be properly designed and implemented so that financial goals of the foreign subsidiaries, and those of the parent company, are communicated to the appropriate responsibility levels within the organizational hierarchy through the output subsystem. (Author/AEF)

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# THE IMPACT OF A COMPUTER BASED INFORMATION SYSTEM (CBIS) ON FOREIGN INVESTMENTS OPPORTUNITIES

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*The purpose of this paper was to analyze the impact that Computer Based Information Systems (CBIS) could have on United States (U.S.) Multinational corporations operating in Canada and particularly the province of Quebec and the implications for the North American Free Trade Agreement that came into effect on January 1, 1994. The study focused on how the data processing, internal audit, and financial intelligence subsystems of a financial information system, can affect the success and viability of foreign investments. The study showed that when the Management Information Systems (MIS) are viewed as an organizational resource, the Financial Information Systems (FIS) must be properly designed and implemented so that financial goals of the foreign subsidiaries, and that of the parent company are communicated to the appropriate responsibility levels within the organizational hierarchy through the output subsystem.*

## INTRODUCTION

The world of the 1990s is certainly very different from that of the 1980's, it requires shifts in management and thinking. Companies' capabilities and constraints have changed, and so have assumptions, methods and solutions that served well enough in the past decades. With continuing advances in computers and telecommunications, managers will have to shape organizations that respond quickly to foreign investment opportunities.

According to Deputy Assistant Secretary Ann H. Hughes, On January 1, 1989, the United States (U.S.) and Canada formed the world's largest free trade area, stretching from the Arctic Circle to the Rio Grande. Not only did this historic U.S. - Canada Free Trade Agreement (FTA) cover bilateral trade in goods and services, but also investment (Business America,1989.) FTA represented a total market of about $ 80 billion dollars a year. FTA has affected every province in Canada. One of the provinces that benefited significantly in the FTA is the Province of Quebec, Canada.

Quebec's economy is expected to continue to grow. There appears to be a strong sense of confidence in Quebec's business community, fueled by Quebec's good economic performance and the prospect of free trade with the U.S. and Mexico (Lindzon, 1992)

The Province of Quebec, Canada border on the province of New Brunswick and the States of New York, Vermont, New Hampshire and Maine to the South. It borders Labrador to the East. Ontario and Hudson Bay lie to the West and the Northwest Territory lies to the North and West. Quebec has a population of about 7 million with a geographic area of 1.7 million sq km. It is 3 times larger than the area of France. About 81% of the Quebecers speak French, 9% speak English and 10% speak other languages. (Balogun, 1988)

The Free Trade Agreement (FTA) took effect on January 1, 1989, after the U.S. Congress and the



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Canadian Parliament had agreed to implement the legislation. The purpose of the FTA was to remove trade barriers and stimulate investment opportunities between the two countries.

New legislation called North America Free Trade Agreement (NAFTA) take effect on January 1, 1994. The purpose of the NAFTA was to remove trade barriers and stimulate investment opportunities among the U.S., Canada and Mexico. The economies of these three countries will be united into the worlds, larget market of our time. Business acquisitions will be allowed without government screening, tariffs will be eliminated or greatly reduced. NAFTA trading zone will serve about 370 million consumers with a combined purchasing power of more than $ 6.5 trillion (VSCPA,Disclosures, 1994.)

In analyzing investment opportunities in foreign countries, one must consider the roles played by management of the host and that of parent countries, in maintaining effective and efficient operations. These roles must include the impact Management Information systems (MISs) will have on foreign operations.

International financial managers often manage by relying largely on various types of information and other environmental factors. Information by definition is the collection and processing of relevant data for managerial decision making. Multinational managers, therefore, must typically require an expanded and more sophisticated information set than their domestic counterparts. Management information systems take into considerations the environmental complexities vis-a-vis the management roles. These environmental factors are government, financial community, cultural, legal constraints and competitors which impact directly on the day-to-day operations of a foreign subsidiary. Along with the environmental complexities are the roles played by management to assure that the foreign subsidiary achieves their stated goals and objectives. According to (Howard & Perlmutter, 1969), these are the traditional management functions: planning, organizing, staffing, motivating and controlling. The economic situation in the world is changing and MNCs have realized that the use of MISs as part of their planning process will bridge the gap between potential and performance in MIS applications (Goodwin, 1991.)

Modern economies are complex, interconnected systems that can be changed by applying information technologies (IT). Whether financial information is viewed as a resource or as a commodity, according to study done by Lindzon, (1992), MNCs doing business in Quebec are increasingly affected by the rules that govern its flow and use. The rules that govern international flow of financial information will determine the decision-making procedures (Krasner, 1983) actual and potential effects on IT used by U.S. MNCs.

As a result, several firms in Quebec are considering joint ventures and license manufacturing with several U.S. firms, requiring the development and use of a complex Computer Base Information System (CBIS).

## THE CBIS AS FRAMEWORK FOR ANALYSIS

According to (McCleod, 1996), the CBIS contains five subsystems Data Processing (DP), Office Automation (OA), Expert Systems (ES), Decision Support System (DSS), and Management Information systems (MIS). The MIS when viewed as an organizational resource is part of the CBIS umbrella for all business applications. Under the CBIS umbrella, the MIS represents organizational efforts to apply the computer as an information resource for decision making concerning, marketing, manufacturing, human resource, and finance.

Since the 1989 FTA with Canada, U.S. firms have gained experience in implementing joint international company-wide functional MIS designs, and are ready for managers in certain functional areas to begin applying the concept to their own needs. In order to provide information concerning the money flow to users throughout the firm, the MIS must contain a subsystem called the Financial Information System. This system within the MIS is a concept and is viewed as one of the firms functional areas. The Financial Information Systems should be the heart beat of most MNCs. Its IS technology must be the controlling factor for solving problems before and after they exist within the firm.

A good example of the importance of the conceptual financial Information system is

provided by Lee Iacocca, describing the situation at Chrysler when he became chairman in 1978:

> "A couple of months after I arrived, something hit me like a ton of bricks. We were running out of cash! Gradually, I was finding out Chrysler had no overall system of financial controls - nobody in the whole place seemed to fully understand what was going on when it came to financial planning and projecting. I couldn't find out anything. This was probably the greatest jolt I've ever had in my business career. I already knew about the lousy cars, the bad morale and the deteriorating factories. But I simply had no ideal that I wouldn't even be able to get hold of the right numbers so that begin to attack some basic problems." (Newsweek, 1984).

The influence of communication technology on organizational structure has changed and the focus will be on project management integrating users and data (Hauptman & Allan, 1987).

Moreover, Sears Canada, a MNC doing business in Quebec could not maintain its financial health, without a financial information System being part of its MIS.

The perplexing issue of distance faced by MNCs management can be eased through the use of telecommunications. However, the communication between the parent company and its subsidiary becomes extremely tedious when the information flows through many channels that are thousands of miles apart. More succinctly, information flow must deal with cultural and language interpretations. A case in point is the foreign operations in Quebec. Since Quebec is a French speaking province, the provision of timely information, which often is written in English from the parent company often relies on the use of output from a financial input subsystems where internal auditors give workable recommendations on how to deal with the great diversity of external conditions that bear upon financial decisions of a foreign subsidiary. Large firms usually have a staff of internal auditors who periodically study the firm's conceptual systems to insure that the integrity of the data is maintained.

## INFORMATION FLOW PROBLEMS

Business information flows have traditionally assumed a vertical mode in the organizational hierarchies, i.e., information moves from lower to higher management echelons and conversely. Therefore, international managers are mainly concerned with the type and quantity of information they receive and the source in which the information originated and processed before ultimately channelling the data to the users. One must be aware of the potential for information overload when using the conceptual Financial Information System, where an excess of information is available and forwarded to the managers through the use of forecasting, funds management, and control output subsystems. The situation is even more precarious for multinational managers who are often confronted with information overload and at the same time are asked to make instantaneous decisions that will affect the local operations of the company as a whole (Certo, 1992.)

There are rules for the international flow of information. As the financial information requirements grow, issues such as privacy, intellectual property rights, telecommunications, and trade have to be resolved through global cooperation among the U.S. and Canada. Sector specific principles are critical (Mashatt, 1989) when enhancing telecommunications-network-based services. The FTA does not change the right of either country to allow monopolies in basic telecommunications services. However, it recognizes that these services are essential for marketing of many other services, like electronic mail. The FTA guarantees companies who need to use basic telephone services the right to connect to and use those services. All computer services, such as software and computer leasing and rental services, which do not necessarily use basic telephone services as their means of distribution to customers, are granted rights under FTA legislation (Mashatt, 1989.)

## TRANSLATION/TRANSPOSITION PROBLEMS

Another major information problem is the question of the translation or transposition from one information code to another, i.e., from English to French. In appraising the performance of a foreign subsidiary, U.S.

managers generally express a preference for management reports stated in English and the foreign currency is also translated to U.S. dollars. In every translation, some cogent and relevant information may be lost due to translation or transposition problems. In fact, it may be impossible to translate word-for-word a management report from English to French. Evidently, the French speaking manager receiving a report so transposed may not receive the same message (information content) the financial manager in the U.S. would receive on the basis of the original report. This factor makes a lot of difference in the information content of transmitted messages (Daley, 1985).

Multinational information flows must be premised upon a solid basis on which foreign subsidiaries must operate. Such premisses are policy decisions of the parent company. According to (Perlmutter, 1969), in analyzing investment opportunities, the parent company must classify multinational organization policies.

## FINANCIAL CONTROL PROBLEMS

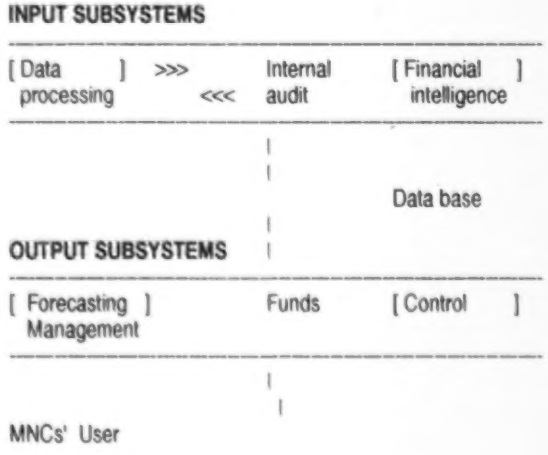
The MIS will be ineffective and inefficient without the proper management of the financial information systems designed and implemented for both domestic and foreign investments. By the same token, the financial information system control subsystem must be designed and properly implemented so that financial goals of the company can be communicated to the appropriate responsibility levels within the organizational hierarchy. Such a well-designed financial information system subsystems should include a control subsystem that enables the company to evaluate the degree to which established objectives are being achieved and the corrective actions that are being taken when actual performance deviates from standards. Its functions should include measurement, communication, evaluation and motivation. Also, providing information on the annual operating budget, actual expenses are important. Cultural and language attributes must be intricately considered and properly evaluated so as to make the control subsystem work effectively and efficiently.

According to the research study, Analyzing Quebec Investment Opportunities: Accounting Decision Making for Multinational Corporations (Balogun ,1988), some U.S. firms operating in Quebec suggested that there are cost advantages to transplant as much of the control subsystem to Quebec as possible. Some international managers in Quebec further pointed out that many managers are familiar with the foreign subsidiary's MIS. As a result, the use of identical financial control subsystems internationally will achieve uniformity in the organizational financial information systems. However, since one of the objectives of the financial information system is safeguarding enterprise assets, a CBIS with its hardware in either location could meet the organizational needs for both locations. The potential impact of environmental diversity on the financial information system cannot be overemphasized. Home management should seriously consider a method for designing and implementing financial control in its Quebec subsidiaries so as to achieve the MIS's objectives that are established for the organization.

In analyzing investment opportunities in Quebec, U.S. firms must adapt their MISs so that they contain a financial intelligence input subsystem in order to gather information on various industrial features and characteristics, and environmental elements that influence the money flow. The Financial Information System pictured in Figure 1. is designed to gather industrial features and environmental data and information.

**FIGURE 1**

**FINANCIAL INFORMATION SYSTEM**



The data processing input subsystem performs the firm's data processing tasks of gathering data that describes the firm's activities, transforms the data into information, and makes the information available to functional financial managers.

In evaluating the profitability, efficiency and effectiveness of foreign investments, the parent company must get score keeping, performance evaluation, and problem solving to the internal audit subsystem. These are traditionally the roles of management accounting. Internal auditors are sent to the foreign subsidiaries to assess the quality of operations and the status of a going concern. This information in part is gather and stored in the internal audit subsystem.

MNCs financial manager will need access intelligent information in order to manage their resources. Information from data such as: energy cost, exchange rates, industrial land cost, industrial building costs, manpower costs, the financial community, stockholders, and the government must be gathered from the environment using the financial intelligence input subsystem. All of the above data from environmental sources as well as internal sources should be stored in the firm's database. This information is critical, and must be processed and presented to financial functional area managers so the firm may have qualitative as well as quantitative information before making investment decisions.

Many MCNs which have tried to invest in foreign countries have realized that the key issue is the output subsystems of the Financial information system. The output subsystem contains information pertaining to forecasting, funds management and control.

Forecasting is used to predict what will tend to happen in the future by taking a look at what has happened in the past. Since the output used from the forecasting subsystem helps users make semistructured decisions, the decision support system is a great tool that supports this model. In the CBIS model, the managers from the functional areas can forecast short-term. However, long-term forecasting is usually done by an area other than marketing, by the financial function or by a special group that has planning as its only responsibility.

The management of funds is critical to the success of MNCs. The flow of money from the environment, through the firm, and back to the environment is important because money is used to obtain the other physical resources. The flow can be managed through the funds management subsystems output. Managers can be assured that the revenue inflow is greater than the expense outflow. The conversion from U.S. dollars to the foreign country's currency and vise versa, can be done before the output is presented for use.

The best way to control, is to use an operating budget. This bugget is used by managers to meet the operational objective of the company. The control subsystem can provide valuable ratio reports to the users. The CBIS has probably done a better job in the control area than any other. When an accurate and current database exists, it is a simple process to compare actual and budgeted expenses, produce reports, and compare ratios.

## CONCLUSION

The pace of technological change exceeds the ability of many organizations to keep up with the versatility. Many MNCs today have realized the change and are using CBIS technology to prevent their operations from lagging behind in the foreign investment markets.

The impact that the CBIS can have on foreign investment is critical. That MNCs doing business in other countries, especially Canada, must have a CBIS that contains a Financial Investment Subsystem as part of their MIS is unquestionable.

The growth of CBIS technology offers MNCs the opportunity to improve the performance of their firms in the global market. The functional manager as end-user, can use the output from the CBIS to control day to day activities of the host country foreign firm.

The CBIS should become the dominant kind of computing for MNCs doing business in foreign countries, especially the NAFTA countries, and

MIS executives need such an approach for dealing with the demands of new foreign investment legislation such as NAFTA.

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